

# **Class III (Bulk) Distribution Successes: What Can Be Learned?**

**A Monograph**

**by**

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## ABSTRACT

CLASS III (BULK) DISTRIBUTION SUCCESSES: WHAT CAN BE LEARNED by MAJOR Bernard L. Moxley Jr., United States Army, 53 pages.

Major combat operations during Operation Iraqi Freedom (OIF) were a great success; however, the theater logistics system has come under an enormous amount of criticism from both warfighters and logisticians. Leaders at all levels of command have criticized OIF distribution management systems. However, distribution of bulk petroleum served as one supply commodity that was an exception to the criticism. The performance of OIF bulk petroleum distribution was in contrast to Operation Desert Storm (ODS) with its noted fuel shortages and reports of units running out of fuel on the battlefield.

Key CFLCC leaders witnessed and in some cases personally experienced fuel shortages during ODS and were determined that there would not be any fuel shortages on the OIF battlefield. This determination was evident in the preparation and development of the OIF bulk fuel distribution infrastructure. That same emphasis and priority was not consistent throughout the entire logistical spectrum resulting in degraded performance. It is important to study the success of Class III (B) distribution to determine if there are systematic attributes transferable to the distribution of other commodities.

Distribution has been problematic throughout military history and with America's military logistics system, evolving from supply based to distribution based makes optimizing distribution even more critical. The Army's push to become highly expeditionary further stresses the importance of effective distribution across the operational spectrum.

The purpose of this paper is to analyze the distribution processes for bulk petroleum (Class III Bulk) against the distribution processes for (Class I-MREs) at the operational and tactical levels of war. The methodology involved a historical comparison of Class I (MREs) and Class III (Bulk) using the criteria of command and control (C2) and theater development. Theater development was defined as the amount of effort: expressed as priority of effort, construction and resources allocated prior to the start of offensive operations.

This study reinforced that logistics is a system of systems and is complex by nature. The success of Class III (B) during OIF is largely attributable to C2 and the level of theater development. Senior leaders were determined not to repeat their experiences of ODS fuel shortages. Unfortunately, the same emphasis was not placed on the other logistical commodities resulting in degraded performance. Class III (B) performed in an outstanding manner and the other classes of supply performed consistent with the level of investment. C2 was also critical to Class III(B)'s success. The 49<sup>th</sup> QM GRP was the single bulk fuel operator and performed in an outstanding manner.

This paper recommends that if the military wants to achieve both efficiency and effectiveness then a four star Joint Logistics Command (JLC) must be activated. TRANSCOM can transition to the JLC. Doctrine was found to be viable but was not followed in some cases. The TSC Commander should be the single operational logistical operator which doctrine currently dictates. Commanders and planners have to understand that there is a direct correlation between the level of logistics infrastructure investment and expected logistics performance.

## TABLE OF CONTENTS

INTRODUCTION .....	1
Background and Purpose .....	2
Limitations.....	4
Importance .....	5
Organization .....	5
EFFECTIVENESS OF COMMAND AND CONTROL (C2) .....	6
Operation Desert Shield/Storm C2 .....	7
Observations.....	9
Operation Iraqi Freedom C2.....	11
EFFECTIVENESS OF THEATER DEVELOPMENT .....	16
Operation Desert Shield/Storm Theater Development.....	17
Operation Iraqi Freedom Theater Development.....	19
Observations.....	24
EFFECTIVENESS OF DOCTRINE.....	25
Operation Iraqi Freedom Doctrine .....	26
Current Class I and Class III(B) Distribution Doctrine .....	32
Class I Distribution:.....	32
Class III (Bulk) Distribution.....	35
Observations .....	36
RECOMMENDATIONS .....	36
CONCLUSION .....	41
BIBLIOGRAPHY .....	44
Books.....	44
U.S. Government Publications .....	44
Articles .....	47
Unpublished Interviews.....	48
Briefings .....	53

## TABLE OF FIGURES

Figure 1: 377th Theater Support Command Organization Chart .....	11
Figure 2: Simplified OIF Distribution Complexity Chart .....	15
Figure 3: OIF Distribution Inefficiency .....	28
Figure 4: OIF Class III (B) Distribution Efficiency .....	29
Figure 5: 377th TSC Fusion of Movements and Sustainment.....	30
Figure 6: 377th TSC OIF Theater Distribution Concept.....	31
Figure 7: Class I Battlefield Distribution .....	33
Figure 8: Class III (Bulk) Battlefield Distribution .....	34

## INTRODUCTION

Rather, most armies seem to have prepared their campaigns as best they could on an ad hoc basis, making great, if uncoordinated, efforts to gather together the largest possible number of tactical vehicles, trucks of all descriptions, railway troops, etc., while giving little, if any, thought to the ‘ideal’ combination which, in theory, would have carried them the furthest.

Creveld, *Supplying War*<sup>1</sup>

History has echoed Dr. Van Creveld’s statement that armies have logically prepared their campaigns on an ad hoc basis and the United States has not been immune. In every recent major combat operation, the United States Army in reviewing its performance, normally determines that logistics can be improved. During Operations Desert Shield/Storm and Iraqi Freedom, while major combat operations was noted as a great success, logistics was singled out as needing improvement. During Operation Iraqi Freedom the Third Army and Combined Forces Land Component Command (CFLCC) Commanding General LTG David D. McKiernan, related that out of all the operational functions, joint logistics required the most work.<sup>2</sup>

In *On Point*, an Army publication on OIF, combat service support was one of five shortfalls identified during OIF. Some of the criticisms included “the recent shift to “just in time” logistics to the training and equipping of CSS soldiers and units. The current system emphasizes efficiency over effectiveness- from parts to supply distribution- in combat, however, effectiveness is the only real measure of success.”<sup>3</sup>

The Army is currently transforming from an Army of Excellence and Force XXI structure to modularity. The transformation is centered on restructuring the Army into modular formations with inherent capabilities to meet current and future threats. General Peter J.

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<sup>1</sup>Martin Van Creveld, *Supplying War: Logistics from Wallenstein to Patton* (London: Cambridge University Press, 1977), 236.

<sup>2</sup>LTC Kevin M. Woods, “LTG David D. McKiernan interview, Commanding General, CFLCC,” OIF Study Group, 1 May 2003. LTC Woods states that the interview consists of notations and not quotations.

<sup>3</sup>U.S. Department fo the Army, *On Point: The United States Army in Operation Iraqi Freedom* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004), xxviii.

Schoomaker, Army Chief of Staff, stated “Logistics transformation is critical as the Army adapts to the new realities.”<sup>4</sup>

The Army’s combat, combat support and combat service support (CSS) force structure was historically based on defending and if necessary defeating Soviet aggression. Resource constraints affected combat service support organizational design and forced CSS centralization at division, corps and theater levels in order to achieve efficiencies.<sup>5</sup>

Operation Iraqi Freedom did provide a well noted logistical success and that was Class III (Bulk) fuel. The CFLCC C-4, MG C.V. Christianson noted “The Class III bulk system was a key element in this fight and should be studied for future fights.”<sup>6</sup>

## **Background and Purpose**

Major combat operations during Operation Iraqi Freedom (OIF) was a great success however, the theater logistics system has come under an enormous amount of criticism from both warfighters and logisticians. Leaders at all levels of command have criticized OIF distribution management systems. However, distribution of bulk petroleum served as one supply commodity that was an exception to the criticism.

BG Vincent Boles, CFLCC Deputy C-4 reflecting on the success of class III (Bulk) stated, “that bulk fuel was readily available” during Operation Iraqi Freedom.<sup>7</sup> The performance of OIF bulk petroleum distribution was in contrast to Operation Desert Storm (ODS).

The Operation Desert Storm Class III (Bulk) distribution system experienced fuel shortages and reports of units running out of fuel on the battlefield. Key CFLCC leaders witnessed and in some cases personally experienced fuel shortages during ODS and were

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<sup>4</sup>General Peter J. Schoomaker, *White Paper: Joint and Expeditionary Logistics for a Campaign Quality Army (Draft)* (Washington D.C. : U.S. Government Printing Office, 2004), 1.

<sup>5</sup>Ibid, 9.

<sup>6</sup>Major Paul Williams, “MG C.V. Christianson interview, CFLCC C-4,” OIF Study Group, 23 May 2003.

determined that there would not be any fuel shortages on the OIF battlefield. In his book *Moving Mountains* LTG William G. Pagonis disputes the claim that any units ran out of fuel during ODS.<sup>8</sup>

The CFLCC senior leadership was determined that there would be no fuel shortages during OIF and this was evident in the preparation and development of the OIF bulk fuel distribution infrastructure. Unfortunately, that same emphasis and priority was not projected throughout the entire logistical spectrum resulting in degraded performance.

With the Army and Joint communities revolutionizing distribution it is imperative to study the success of Class III (B) distribution to determine if there are systematic attributes that can be transferred to the distribution of other commodities. Distribution has been problematic throughout military history and continues today. America's military logistics system evolving from supply based to distribution based makes optimizing distribution is even more critical.

The purpose of this paper is to analyze the distribution processes for bulk petroleum (Class III Bulk) against the distribution processes for food (Class I) at the operational and tactical levels of operations. Specifically, what were the reasons for the success of Class III (B) distribution during OIF and what changed from the poor Class III (B) performance during Operation Desert Storm? Was the success systemic or an aberration? Can these successes be transferred to other commodities or is it internally restricted to bulk petroleum? Is there elements

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<sup>7</sup>LTC David Kolleda, "BG Vincent E. Boles interview, CFLCC Deputy C-4," OIF Study Group, 18 May 2003.

<sup>8</sup>LTG William G. Pagonis was the "Commander of Logistics" during Operations Desert Shield/Storm. LTG Pagonis became the 22nd Support Command Commanding General (initially started as an ad hoc organization) and was the highest theater level logistics operator during the first gulf war. During ODS, the USMC, USN and USAF did not work for him. LTG Pagonis was criticized for paying too much attention on strategic movement at the expense of tactical logistics. His critics emphasize that this led to the "iron mountains" of supplies and the evolution to "just-in-time" logistics. After the war he wrote the book *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War* and after his retirement he became the Vice President for Distribution for Sears Corporation. Several Operation Iraqi Freedom Senior logistics leaders sought LTG(Retired) Pagonis' advice as they prepared for the task of preparing the theater logistics infrastructure.

of army and joint doctrine that facilitated or hindered distribution and should it be revised? The answers to these questions will result in recommendations for improving distribution.

## **Limitations**

The greatest limitation of the research is the lack of depth across the logistical spectrum due to the length of this monograph and time available. I will only examine the distribution of Classes I and III (Bulk Petroleum) at the operational and tactical level. The emphasis of this paper is at the operational level. I will discuss the tactical and strategic levels as they affect the subject being explored. There are many points that I will only topically discuss but deserve attention through other studies. Logistics is a system of systems and is very complex.

I selected Class I and Class III (Bulk) because they serve my purpose for examining OIF distribution. Class III distribution was independent from the other classes of supply and achieved success. Class I was competing for resources with the other classes of supply and struggled throughout OIF. I hope to gain insights and recommendations by comparing the distribution performances of Classes I and III (B).

Logistics is complex and I will not look at the requisitioning process except to illuminate any points effecting either Class I and Class III (B). I will also only look at Class I through the lens of Meals Ready to Eat (MRE). This is to exclude the difficulties of fresh foods distribution. More importantly, the thrust of this monograph is to explore distribution of a class of supply (Class I) that competed with other classes of supply. An examination of refrigeration units would not serve the purpose of this monograph.

The decision to use only unclassified and declassified sources may hinder the access to certain information. I decided to keep to unclassified sources to facilitate the widest dissemination of the monograph.

OIF is still ongoing and the sources that I use and the information provided may not truly be reliable in the aspect of lessons learned. One could argue that it is too early to derive lessons

learned and I would agree with that position. Colonel (Ret) Joseph Walden told me following my interview with him “It’s not a lesson learned until someone does something about it.”<sup>9</sup> My hope is to continue the discussion of the future of logistics during this transformational time.

## **Importance**

This monograph is important because as the Army restructures to modularity there are inherent logistical capabilities and concepts that must be developed. Logistics functions are interrelated and interdependent. There is only a finite amount of logistical assets on the battlefield to sustain the force.

Since logistics is a system of systems, actions involving one system involve intended and sometimes unintended effects. The Third Infantry Division clearly identified this in its AAR when it stated “The shortfall in general transportation assets created shortages when carrying capacity could not meet divisional requirements. A shortage in a given class of supply required a disproportionate number of trucks to correct. This phenomenon came to be known as “resupply by inundation” (RBI). This RBI cycle could not be broken until the operations tempo (OPTEMPO) slowed sufficiently to reduce requirements.”<sup>10</sup>

Joint Vision 2020’s principle of “focused logistics” is congruent with the Army’s ability to distribute the right supplies, at the right place, and at the right time.<sup>11</sup>

## **Organization**

This monograph has five major sections. Section one introduces the subject by stating the research question, provides the relevance and importance of the research and the inherent limitations. Section one further defines the problem and provides a background discussion.

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<sup>9</sup>Personal Interview with Colonel(Retired) Joseph Walden, conducted 22 November 2004.

<sup>10</sup>Third Infantry Division, “Third Infantry Division (Mechanized) After Action Report- Operation Iraqi Freedom,” 2003, 203.

<sup>11</sup>U.S. Department of Defense, Joint Vision 2020”, not dated, 24.

Section two provides a comparison of Class I and Class III (B) distribution during Operations Desert Storm and Iraqi Freedom to determine the impact of command and control on the performance. Section three compares Class I and Class III (B) distribution using the criteria of theater development and the impact on the performance during Operations Desert Storm and Iraqi Freedom. Section four provides a doctrinal comparison and analysis of Class I and Class III (B) during Operation Iraqi Freedom. Section four also addresses distribution doctrine and ascertains if it sufficient. Section five provides recommendations and section six is the conclusion.

## **EFFECTIVENESS OF COMMAND AND CONTROL (C2)**

The Army stresses the importance of command and control in operational matters. A key benefit derived from C2 is unity of effort and clear direction. Joint Publication 1-02 defines command and control as “The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.”<sup>12</sup>

The concept of a single logistical commander is frequently recommended as the answer for improved logistics performance. COL (now BG and 1<sup>st</sup> COSCOM Commander ) Yves Fontaine emphasized, “we need to build a centralized and permanent command and control system that includes a logistics commander and a logistics force composed of tailored logistics modules.”<sup>13</sup>

Operation Desert Shield/Storm provides an example of a single logistical operator at the theater level across all the logistical functions and contrasts with OIF where there was not a single

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<sup>12</sup>JP 1-02, Department of Defense Dictionary of Military and Associated Terms, 7 October 2004.

<sup>13</sup>Yves J. Fontaine, “Strategic Logistics for Intervention Forces,” in AY97 Compendium Army After Next Project, ed Douglas V. Johnson II (Carlisle Barracks, PA: U.S. Army War College, 1998), 90.

logistics operator at the theater level. OIF .does provide an example of a single logistics operator at the theater functional level (Class III (B)).

## **Operation Desert Shield/Storm C2**

The fellow who'd come up with the tents-and who was responsible for making sure the soldiers had food, clothing, shelter, transportation, equipment, and bullets- was Major General Gus Pagonis, the chief of logistics for the ground forces of Desert Shield....

Scharwzkopf, It Doesn't Take A Hero<sup>14</sup>

During Operations Desert Shield/Storm there was commonality in the C2 structure for Classes I and III (B). The C2 focus point was the single theater logistics operator, LTG Pagonis. Provided is a general history focused on the logistical effort followed by ODS C2 observations.

Iraq invaded Kuwait on 2 August 1990 and took control of the country. To deter further Iraqi aggression, the United States deployed personnel, equipment and supplies to Saudi Arabia. Due to the perceived immediate Iraqi threat, CENTCOM deployed mobile combat troops first, followed by logistics soldiers.<sup>15</sup>

During ODS, the United States Central Command (CENTCOM) was responsible for the theater logistics management. This included transportation/distribution operations as well as policy. The ARCENT (Army Central Command Component- Third Army) managed the seaport and airport operations. ARCENT was also responsible for management of surface transportation and common items such as clothing, food and fuel.<sup>16</sup>

General H. Norman Schwarzkopf, CENTCOM Commander, and LTG John J. Yeosock, ARCENT Commander, concluded that there was a need for a theater logistics single point of contact and they assigned LTG (then MG) William (Gus) Pagonis the responsibility as the

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<sup>14</sup>H. Norman Schwarzkopf, *It Doesn't Take A Hero* (New York: Bantam Books, 1992), 341.

<sup>15</sup>Yves J. Fontaine, "Strategic Logistics for Intervention Forces," in AY97 Compendium Army After Next Project, ed Douglas V. Johnson II (Carlisle Barracks, PA: U.S. Army War College, 1998), 76.

<sup>16</sup>Ibid.

Deputy Commanding General for Logistics.<sup>17</sup> MG Pagonis saw the monumental task in front of him of building a theater logistics structure from the ground up and realized that he did not have the personnel to accomplish the task. The realization came to light as MG Pagonis relayed, "The complexity of the arrangements being made in my command, and the problems in its ad hoc nature, prompted General Yeosock on August 16<sup>th</sup> to designate my logistics operation as a command of ARCENT."<sup>18</sup> This command would later be designated the 22d Support Command.

A key planning assumption and doctrinally supported was that the 377<sup>th</sup> Theater Army Area Command (later to become the Theater Support Command based on lessons learned from Operation Desert Storm) was to deploy after the theater received its second corps. The XVIII Airborne Corps was on the ground and the VII Corps was arriving in theater. During the alert process, LTG Pagonis argued against the activation of the 377<sup>th</sup> and GEN Schwarzkopf put a stop to the 377<sup>th</sup> deployment. LTG Pagonis' rationale was that the 22d SUPCOM, even though it was ad hoc was now trained to do the mission and introducing a new logistical element would only create additional work<sup>19</sup>

LTG Pagonis' logistical concept was to establish log bases that would move forward with the maneuver forces. The log bases would contain Classes I, III and V. A key planning factor was that the bases were positioned using LTG Pagonis' "90-mile rule." This rule dictated that there would be more than 90 miles between log bases enabling a truck to make a round trip in one day.<sup>20</sup>

One of the legacies that endured from Operation Desert Storm and played a pivotal part in the logistical conduct of Operation Iraqi Freedom was Class III (Bulk). There was a problem with units running out of fuel during Operation Desert Storm. MG Christianson reflecting on the

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<sup>17</sup>William G. Pagonis, *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War* (Boston, MA: Harvard Business School Press, 1992), 97.

<sup>18</sup>Ibid., 98.

<sup>19</sup>Ibid., 131.

<sup>20</sup>Ibid., 146.

experience thirteen years after the first gulf war stated “During Desert Storm many of the brigades, even though they moved 100 to 150 miles, some maybe up to 200 miles, several of them ran out of fuel in those four days.”<sup>21</sup> LTG Pagonis for all of his Herculean efforts during Operation Desert Storm left a blazing memory of armored vehicles unable to move due to a lack of fuel on many leaders that would be the senior leaders during Operation Iraqi Freedom.

LTG Pagonis dismisses the criticism that several VII Corps units ran out of fuel during Operation Desert Storm, as he stated, “this criticism seems off the mark. Brigadier General Guest was only twenty-five miles away with 300 5,000 gallon fuel tanks, simply awaiting instructions from the Logistics Operation Center to move to any critical position on the battlefield.”<sup>22</sup> This subject and LTG Pagonis’ statement are extremely important because during OIF the senior leadership was determined that no one would run out of fuel like Desert Storm.

## Observations

In his book *Moving Mountains*, LTG Pagonis stated, “Control is centralized; execution is decentralized.”<sup>23</sup> LTG Pagonis’ quotation is mentioned frequently throughout the Army and supports the concept of a single logistical operator on the battlefield. LTG Pagonis’ Desert Storm performance stands as the example of the logistical possibilities when one person has responsibility for the entire logistics execution. One of the biggest criticisms of distribution management today is that there is not one entity in charge.

The importance in “Getting the “right” command and control (C2) logistics headquarters in theater early is the key to providing the combatant commander with responsive and focused logistics at the decisive time and place.”<sup>24</sup> The “right” C2 headquarters that LTC Cussins is

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<sup>21</sup>Mr. Quentin W. Schillare, “MG C.V. Christianson interview, CFLCC C-4,” OIF Study Group, 4 November 2003.

<sup>22</sup>Ibid.,147-148.

<sup>23</sup>Ibid.,84.

<sup>24</sup>Ronald N. Cussins, “The Case for the Theater Support Command,” Army Logistician (July-August 2004), 29.

referring to is the TSC. The Desert Shield/Storm experience conceived the Theater Support and the Marine Logistics Commands.<sup>25</sup>

Operations Desert Shield/Storm also left a legacy on the distribution system that the Army has not reconciled to date and that is bottled water. As Suzi Thurmond relates "Soldiers supporting major operations have been drinking bottled water since ODS. Soldiers and commanders expect to drink bottled water when they deploy, even though bottles place an enormous strain on scarce distribution assets."<sup>26</sup>

Bottled water took roughly 50% of the transportation assets allocated to the Theater Distribution Center (TDC). COL (Retired) Walden related that the TDC would ship out 100 trucks daily with Class I and bottled water. On each 40ft trailer, half was Class I and the other half was bottled water.<sup>27 28</sup>

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<sup>25</sup>Michael R. Lehnert and John E. Wissler, "Marine Logistics Command", *Marine Gazette* (August 2003),30.

<sup>26</sup>Suzi Thurmond, "Analyzing the Lessons of OIF Distribution," *Army Logistician* (July-August 2004), 19.

<sup>27</sup>Personal Interview with Colonel(Retired) Joseph Walden, conducted 22 November 2004.

<sup>28</sup>Author's Note: The Army logistics community is grappling with the concept of bottled water. There is discussion about removing all the water teams or relegating them to the reserve component. This is a very serious problem that the Army needs to reconcile. It has far reaching distribution and manpower dimensions. The author recommends that the Army establish bottled water planning factors, allocates appropriate transportation assets and containerization for handling the bottled water.

## Operation Iraqi Freedom C2

Early in the planning for OIF, LTG McKiernan informed MG Kratzer, Commander, 377<sup>th</sup> TSC that fuel would not inhibit maneuver during the operation. MG Kratzer relayed, “But fuel would not be the reason the attack was limited and we made sure there was enough fuel for our tanks and our Bradleys to move forward.

MG Dave Kratzer, 377<sup>th</sup> TSC CG <sup>29</sup>

During Operation Iraqi Freedom the 377<sup>th</sup> Theater Support Command (TSC) handled the theater logistics. The 377<sup>th</sup> TSC was an Army Reserve unit from New Orleans that habitually supported the Third Army. Figure 1 depicts the 377<sup>th</sup> TSC organization structure.

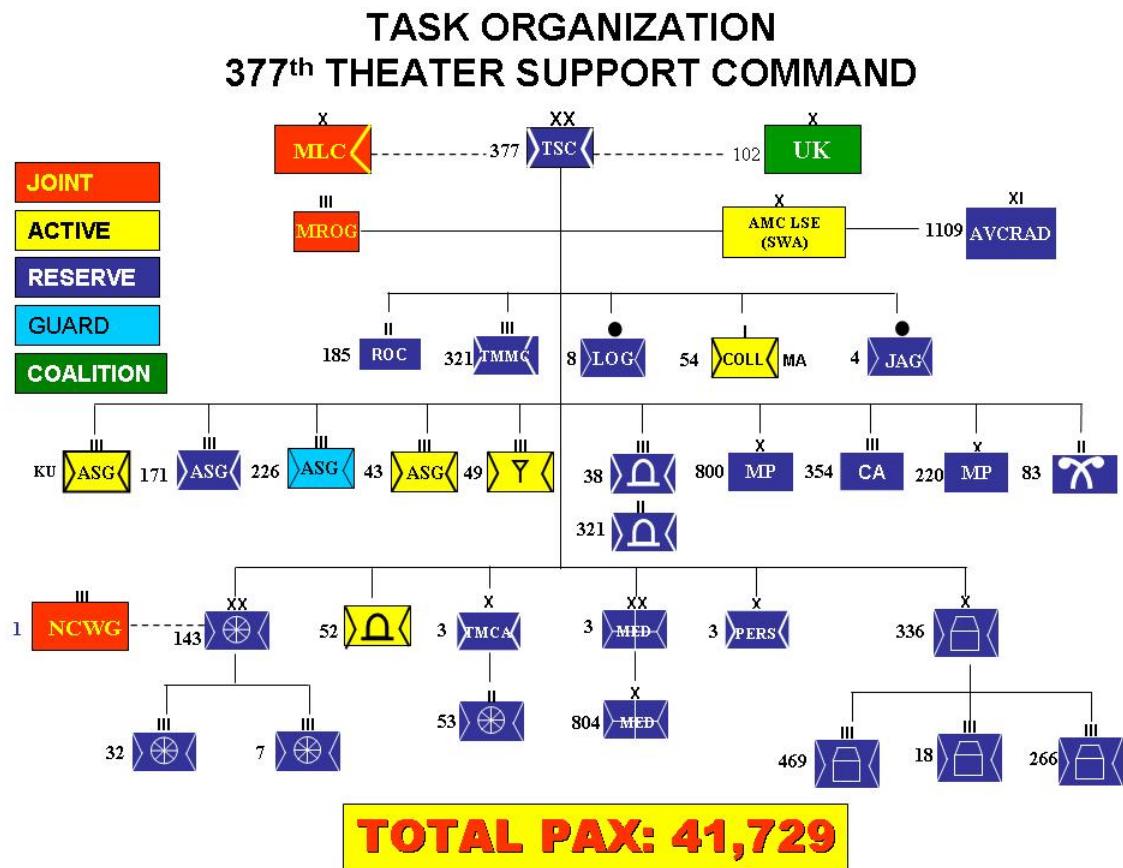


Figure 1: 377<sup>th</sup> Theater Support Command Organization Chart

Source: 377<sup>th</sup> Theater Support Command Briefing dated 11 May 2004

During OIF, the 377<sup>th</sup> TSC, commanded by Major General Dave Kratzer, was comprised of over 41,000 active component, National Guard and Army Reserve soldiers. The 377<sup>th</sup> TSC consisted of eight General Officer and six O-6 (Colonel) subordinate level commands. The 377<sup>th</sup> was responsible to provide theater level life support to include hospitals, personnel, finance, medical, base operations, ports, airfields, transportation, movement control, supply and military police.<sup>30</sup>

Unlike ODS, OIF did not produce a single logistics operator at the theater level. There was no LTG Pagonis during OIF and it showed. There were three major generals working on theater logistics. These generals were MG Christianson (CFLCC C-4), MG Stratman (CFLCC DCG-Support) and MG Kratzer (377<sup>th</sup> TSC Commander). Doctrinally the TSC Commander is responsible for theater logistics but it turned out to be a confusing situation of who was in charge. LTG McKiernan added to the confusion when he said that the CFLCC C-4 (MG Christianson) was the “Commander of Logistics”.<sup>31</sup>

Unlike LTG Pagonis, MG Christianson was a staff officer with no command authority over any logistical units. Doctrinally, MG Kratzer should have been the single theater logistical operator. If LTG McKiernan was going to deviate from doctrine and assure clarity he should have taken the steps to make MG Christianson a commander. The command authority would have assured unity of effort and focus. Following the Operation Desert Storm (LTG Pagonis) model would have provided the disparate staffs unity and economy of effort.

Because there was not a single logistical operator, each of the generals had separate meetings and briefings. This resulted in three generals’ supporting staffs having to prepare for

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<sup>29</sup>Mr. Quentin W. Schillare, “MG Dave Kratzer interview, Commander, 377<sup>th</sup> Theater Support Command,” OIF Study Group, 4 November 2003.

<sup>30</sup>Mr. Quentin W. Schillare, “MG Dave Kratzer interview, Commander, 377<sup>th</sup> Theater Support Command,” OIF Study Group, 4 November 2003.

<sup>31</sup>Personal Interview with Colonel Kevin Benson, (CFLCC C-5) conducted 29 November 2004.

their general's daily briefing and also provide input to the other generals' briefings. This lack of cohesion translated to daily briefings from 1700-2300 for many staff members. Six hours of daily meetings translates to many lost hours of productivity and supervision on behalf of many senior staff and commanders. Also, the lack of a single logistical commander created an atmosphere of indecision.

The analogy of the child who plays off his parents until he gets what he wants is appropriate to illustrate the confusion on decision making in the theater logistics arena. Since no one knew who was in charge, people would go from general to general to get a decision that they needed to execute or plan. This situation also facilitated improper decision making because some people would just keep asking a general until they got the answer that they wanted.<sup>32</sup> The OIF C2 structure did not allow the effective employment of logistical processes because of no clear delineation of responsibility. The dispersion of responsibility resulted in vacillation and ineptness among the decision makers and their commands. Logistics is difficult without having to ask who's in charge and who is the right person to make a decision? Command relationships have to be established early to optimize economy of effort. The inverse example during OIF was the 49<sup>th</sup> Quartermaster Group (POL).

Even though it was subordinate to the 377<sup>th</sup> TSC, the 49<sup>th</sup> Quartermaster Group was the single OIF petroleum operator. The CFLCC C-4, MG Christianson highlighted the importance and benefit of a singular petroleum point of contact when he stated, "There was a single person responsible for everything from getting the POL, to putting the distribution system in place, to executing the mission."<sup>33</sup>

COL Frazier, the 49<sup>th</sup> QM Group (POL) Commander also recognized the importance of being the single POL Theater Operator when he said, "We controlled the distribution from the

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<sup>32</sup>Personal Interview with Colonel (Retired) Joseph Walden, conducted 22 November 2004.

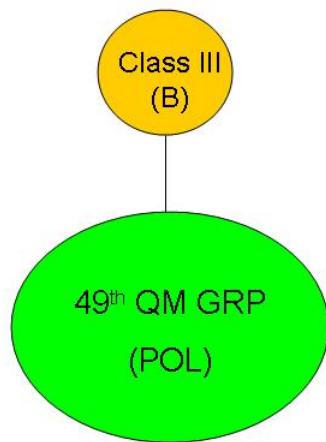
<sup>33</sup>Major Paul Williams, "MG C.V. Christianson interview, CFLCC C-4," OIF Study Group, 23 May 2003.

factory to the destination.”<sup>34</sup> COL Frazier stated that the fact the 49 QM Group (POL) was the single operator was one of the two reasons that Class III was so successful during OIF. In his opinion, the other reason for the bulk petroleum success was the decision to preposition seven POL Distribution Companies prior to the start of OIF. That decision to preposition those companies will be discussed further in the infrastructure section.<sup>35</sup>

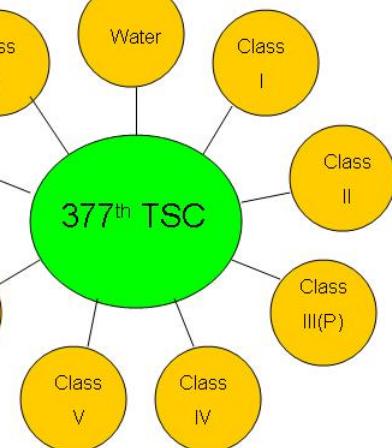
The 49th QM GRP had a tremendous advantage over the other disparate units in the 377<sup>th</sup> TSC due to its ability to train and plan collectively. The 49<sup>th</sup> QM GRP participated in the exercises prior to OIF. Also, due to the importance of petroleum and the priority placed on it by senior leaders, the bulk petroleum distribution process was rehearsed extensively.<sup>36</sup>

## OIF DISTRIBUTION COMPLEXITY (A Simplified Approach)

### Class III (B) View



### Class I View



<sup>34</sup>LTC David Kolleda, “COL Melvin Frazier interview, 49<sup>th</sup> QM GRP (POL) Commander, OIF Study Group, 24 May 2003.

<sup>35</sup>Ibid.

<sup>36</sup>Suzi Thurmond, “Analyzing the Lessons of OIF Distribution,” Army Logistian (July-August 2004), 19.

### **Figure 2: Simplified OIF Distribution Complexity Chart**

Logistics is complex and difficult to synchronize. Figure 2 displays a simplified way of looking at the complexity facing the 49<sup>th</sup> QM GRP (POL) and the 377<sup>th</sup> TSC. The 49<sup>th</sup> QM had responsibility for bulk petroleum from the factory to the foxhole. As such, the 49<sup>th</sup> QM was responsible for the operational to the tactical level distribution. Obviously, the 377<sup>th</sup> TSC had many more classes of supply to distribute.

Figure 2 illustrates the various classes of supply that had to be distributed but the figure's visual simplicity hides the true complexity. What is hidden is the strategic, operational and tactical levels of supply and the requisition process associated with each class of supply. Probably the biggest factor excluded is the enemy who definitely has an effect on OIF distribution. The intervention of distribution creates an unplanned loss to the supply system that cascades throughout the system. "Just in time" logistics further exacerbates the complexity due to the diminished stockage levels on hand to respond to crisis. Additionally, each attack on a convoy normally reduces the lift capability temporarily and may cause a permanent effect if the supply vehicle can not be replaced.

Each class of supply equates to a system within a system as described above. The ability to synchronize and integrate systems of systems diminish as the number of systems increase. Class I as depicted in figure 2 had to compete not only for distribution assets with the other eight commodities but also had to endure the effects of systematic irregularities within systems of systems.

The Army, as a learning organization, must stress "systems thinking". Systems thinking is a conceptual framework, a body of knowledge and tools that have been developed over the past fifty years, to make patterns clearer, and help us to change them effectively.<sup>37</sup> The 49<sup>th</sup> QM GRP (POL) with its singular purpose handled the complexity of Class III (B) expertly.

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<sup>37</sup>Peter M. Senge, *The Fifth Discipline* (New York: Doubleday, 1990), 7.

Complexity can be effectively managed through clear direction and having the resources necessary to establish an infrastructure (framework). Understanding complexity is one facet of the equation but the other is having the right equipment to develop and control the processes. Operations Desert Storm and Operation Iraqi Freedom provide varying levels of success in the effectiveness of theater development.

## **EFFECTIVENESS OF THEATER DEVELOPMENT**

The guys back in Washington and the guys back in Central Command in Tampa are probably not going to understand this-but the biggest concern we have is logistics. If we can't sustain the force on the battlefield, we're wasting bringing the force over here. A tank without ammunition and fuel is just a piece of metal. You guys have got to succeed. Without you we can't succeed. You know, CSS [Combat Service Support] will not win a war, but CSS will sure lose a war.<sup>38</sup>

LTG McKiernan talking to BG Stultz (143 TRANSCOM Commander)

The effectiveness or build up of theater development can not be understated. The build up of logistical infrastructure to include personnel, equipment and facilities equate to performance success. Theater development is defined as the amount of effort, expressed as priority of effort (support), physical construction and resources allocated to the logistic functions prior to the commencement of offensive operations

One of the key conceptual tools available to planners in building flexible operational support plans is the logistics preparation of the theater (LPT). The LPT is used to identify resources available in the theater for use by friendly forces. The LPT coupled with an estimate of requirements allow logisticians to advise commanders of effective methods to facilitate responsive support to the operations.<sup>39</sup>.

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<sup>38</sup>SGT Frank N. Pellegrini, "Supporting Gulf War 2.0", Army, September 2003,26.

<sup>39</sup>U.S. Department of the Army, FM 4-0, Combat Service Support (Washington D.C., Government Printing Office, 2003), 5-34.

Operations Desert Shield/Storm and Iraqi Freedom are similar logically in the amount of infrastructure buildup prior to hostilities. *On Point* interestingly points out that the 12 years of effort to build the infrastructure was one of the key enablers to the war effort. Conversely, *On Point* asks the question of how the joint force would operate in a less mature theater.<sup>40</sup>

## **Operation Desert Shield/Storm Theater Development**

...one of the first things he did was read Moving Mountains: Lessons in Leadership and Logistics from the Gulf War, which was the theater support memoir of Lt. Gen. William G. Pagonis, the commander of the first TSC- a man who knew what it was to build what Kratzer has likened to a “city in the sand.”

An interview by SGT Pellegrini with MG David Kratzer (377<sup>th</sup> TSC Commander)

As discussed earlier in the C2 section, during ODS the perceived immediate Iraqi threat towards Saudi Arabia or other nations, CENTCOM deployed mobile combat troops first, followed by logistics soldiers. In answering the threat with a preponderance of combat forces, the United States military had to establish the logistics infrastructure after the arrival of combat forces. LTG Pagonis had the challenge of not only building a logistical infrastructure in an austere environment but also supporting the combat forces already in Saudi Arabia.<sup>41</sup>

During ODS, the United States Central Command (CENTCOM) was responsible for the theater logistics management. This included transportation/distribution operations as well as policy. The ARCENT (Army Central Command Component- 3<sup>rd</sup> Army) managed the seaport and airport operations. ARCENT was also responsible for management of surface transportation and common items such as clothing, food and fuel.<sup>42</sup>

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<sup>40</sup>U.S. Department of the Army, *On Point: The United States Army in Operation Iraqi Freedom* (Fort Leavenworth, KS, Combat Studies Institute Press, 2003), xxvii.

<sup>41</sup>Yves J. Fontaine, “Strategic Logistics for Intervention Forces,” in AY97 Compendium Army After Next Project, ed Douglas V. Johnson II (Carlisle Barracks, PA: U.S. Army War College, 1998), 76.

<sup>42</sup>Ibid.

CENTCOM's decision to delay the arrival of logisticians to the theater had severe detrimental effects. The initial support structure could not effectively sustain the early combat troops that arrived. There was a significant shortage of transportation assets, material handling equipment (MHE), heavy equipment transporters (HET) and tractor-trailers. The austere Army logistical presence meant no support for the Air Force and the Marines operating in Saudi Arabia.<sup>43</sup>

Deployment was problematic due to the lack of automation in CENTCOM. Since CENTCOM had not completed its war plan, the automated data system which provided visibility of deployment data was not populated. This also meant that logisticians could not track equipment and supplies arriving in the APOD/SPODs. Logisticians may have known the arrival date of a ship but not its contents. This meant that containers had to be opened to verify the contents and destination.

Also, due to changes in the deployment sequence, units would many times follow their equipment. Due to a lack of visibility, logisticians would have equipment without knowing when the unit would arrive. All of these factors overwhelmed the logisticians and the port. This was the start of Desert Shield/Storm's "Iron Mountain".<sup>44</sup>

Container management as described above was a significant logistical problem. No viable tracking system existed in the Army. This coupled with a lack of MHE and improper documentation processes meant a massive amount of "frustrated" cargo. The logistical personnel that were needed to properly receive the items had not arrived in country. Units that had not received their items reordered them further stressing the logistical system.<sup>45</sup>

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<sup>43</sup>Ibid. 76-77.

<sup>44</sup>Ibid. 77.

<sup>45</sup>Ibid. 77-78.

## Operation Iraqi Freedom Theater Development

*On Point* discusses the 12 years of theater buildup that facilitated the success of Iraqi Freedom. Those preparations eluded the logistics arena until an attack was imminent. Then outside assistance was brought in to determine what logistic preparatory tasks needed to be accomplished.<sup>46</sup>

MG Bill Mortenson, Commander, 21<sup>st</sup> TSC (USAREUR) was brought in to help delineate and justify the tasks. DOD directed that the Army fund the effort at approximately 550 million dollars. 120 million dollars was in FY02 funds and 363 million was allocated from FY03 funds. The list included class IX, fuel pipeline assets, bridging assets, tents, and maintenance facilities.<sup>47</sup> At the beginning of operations on 19 March 2003, the 49<sup>th</sup> QM GRP had over 220 miles of pipeline and were able to store eight million gallons or the equivalent of 15 days of supply for the attack north.<sup>48</sup>

In terms of distribution the CENTCOM preparatory tasks included only four distribution related items. Out of the four tasks, only two were land based and these included pre-positioning seven Medium Truck Companies (POL) and building a 2.4 million gallon bag farm in support of the pipeline. The other two distribution based pre-tasks were waterborne. These included building to support JLOTS at the Kuwait Naval Base and pre-positioning Army watercraft.<sup>49</sup>

The United States asked the Kuwaiti government to put in fuel pipelines and roads from the refineries to the Iraq border. The fuel oil pipeline cost initially 25 million dollars and the Kuwait Oil Company funded the construction. The United States provided the pumps for the

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<sup>46</sup>U.S. Department of the Army, *On Point: The United States Army in Operation Iraqi Freedom* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004) xxviii.

<sup>47</sup>Colonel (Retired) Greg Fontenot, “MG Stratman interview, CFLCC DCG (Support),” OIF Study Group, 19 June 2003.

<sup>48</sup>LTC David Kolleda, “COL Melvin Frazier interview, 49<sup>th</sup> QM GRP (POL) Commander, OIF Study Group, 24 May 2003.

<sup>49</sup>377<sup>th</sup> Theater Support Command Briefing, dated 11 May 2004.

pipeline at a cost of 4 million dollars.<sup>50</sup> The significance was both monetary and operational. If the Kuwaiti's had not funded the pipeline cost, the United States would have had to fund the 21 million and that may have resulted in the other necessary infrastructure tasks not being completed. Operationally, the pipeline saved the United States military many miles that fuelers did not have to travel hauling fuel from the refineries to the bag farm. Also, the bag farm may have been positioned closer to the refineries in the south. The closer the bag farm was to Iraq equated to responsiveness for attacking forces. Unfortunately, the other classes of supply distribution facilities did not enjoy the luxury of improvement that Class III (B) did. The other classes of supply' performance reflected the degraded level of infrastructure development.

The other classes of supply came through the Central Receiving and Storage Point at Camp Doha. The logistics facilities prepared were solely to accommodate the rotating brigade during exercises and not an onslaught of troops. This facility was totally inadequate for a theater distribution point and became severely backlogged as OIF supplies arrived. In addition, this facility was contractor run and the manpower was insufficient for the OIF build-up.

The 377<sup>th</sup> TSC established a Theater Distribution Center (TDC) at Camp Doha. This was the first TDC (an ad hoc organization) ever established and it was non-doctrinal. The TDC was established to compensate for the lack of a planned GS supply activity that would doctrinally perform the function. The TDC as an ad hoc organization was under- resourced and over worked.<sup>51</sup> Borrowed military manpower was the primary work force and there was a new crew everyday on the day shift. This hampered any efficiency and procedures.<sup>52</sup>

COL (Retired) Walden, was assigned to take over the responsibility of the TDC in his position as the Director of the Distribution Management Center. He stated that on his first vist to

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<sup>50</sup>Colonel (Retired) Greg Fontenot, "MG Stratman interview, CFLCC DCG (Support)," OIF Study Group, 19 June 2003.

<sup>51</sup>Suzi Thurmond, "Analyzing the Lessons of OIF Distribution," Army Logistian (July-August 2004), 23.

<sup>52</sup>Personal Interview with COL (Retired) Walden on 22 November 2004.

the TDC there were over 1,000 Air Force pallets and he said “The early days of the TDC was no different from Cam Rahn Bay, (Vietnam) without the trees.”<sup>53</sup>.

The 693d Quartermaster Company was assigned to operate the TDC. It had no training for a GS supply facility and had been originally sent to off load ships with the company’s 50 soldiers. The unit had no material handling equipment, automation, and had to provide security which stretched the company.<sup>54</sup>

CPT Erik Hansen, the 693d Commander, stated that when his company first arrived at the TDC, there were 28 containers waiting to be unloaded and then five days later many more containers arrived from the APOD and SPOD.<sup>55</sup>

The problem with an ad hoc organization is training and standardization. A TDC Operations Officer relayed that unit expeditors determined cargo shipment priority. AAFES cargo was the only exception due to the morale impact and high pilferage of the items. The First Lieutenant Operations Officer said “If there was not a unit expeditor, the practice was first in first out.”<sup>56</sup>

The need for TDC unit expeditors was despised by the units and rightly so. The Lieutenant’s statement and units’ perception for the need of expeditors represent the break down of the distribution system. The Army’s distribution system is based on an automated requisitioning system where units order supplies with a priority code to designate the degree of need. Also, the distribution system has a responsibility to follow that requisition from the unit’s order to the source of supply where the supply is shipped to the unit. The system culminates when the unit receives the supply designated on the original requisition .

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<sup>53</sup>Ibid. Author’s Note: COL (Retired) Walden stated that Cam Rahn Bay was historically noted as a picture of supplies everywhere and no organization.

<sup>54</sup>MAJ Paul Williams, “CPT Erik Hansen interview, Commander, 693d QM CO (GS), “ OIF Study Group, 11 May 2003.

<sup>55</sup>Ibid.

<sup>56</sup>MAJ Paul Williams, “1LT Patterson interview, Operations Officer, 3079 Transportation Detachment (Cargo Distribution),” OIF Study Group, 11 May 2003.

Human intervention is only necessary for emergency situations and should not be become systematic as the expeditors became. Priority for supplies coming out of the TDC should have been directed by higher headquarters and not by the presence of expeditors. To insinuate that having non doctrinal expeditors guarantees delivery of supplies and the absence of an expeditor guarantees late delivery if not possible non receipt is completely wrong. The 3ID in its AAR address the manpower drain that was incurred by establishing functional expeditors.<sup>57</sup> To have a unit in contact with the enemy consciously degrade its ranks and provide expeditors in order to manipulate the distribution system is an indictment of the logistics system. Adding to the distribution problem was the lack of transportation assets.

The 3ID reported in its AAR that the lack of general transportation assets and the lack of host nation assets to perform as anticipated negatively impacted on the support to the division. The assets available were not sufficient to meet corps and divisional needs. The lack of transportation assets also contributed to “resupply by inundation” (RBI).<sup>58</sup>

“RBI” was created when a shortage in a class of supply required that a disproportionate number of trucks had to move the shortage forward inundating the supported unit’s capability in that supply item and created a shortage in another class of supply. The new shortage required replenishment and the cycle would continue.<sup>59</sup>

“RBI” not only caused havoc at the tactical level but also caused frustration at the operational level. LTC Regina Grant, Commander, 53<sup>rd</sup> Transportation Battalion stated “We were always doing emergency pushes of Class I supplies, and that affected our ability to create a routine transportation program.”<sup>60</sup>

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<sup>57</sup>Third Infantry Division (Mechanized) AAR, 211.

<sup>58</sup>Third Infantry Division (Mechanized) AAR, 203. Author’s Note: RBI is discussed in the importance section of this monograph.

<sup>59</sup>Ibid.

<sup>60</sup>LTC. David J. Kolleda, “LTC Regina Grant interview, Commander, 53<sup>rd</sup> Transportation Battalion,” OIF Study Group, 7 June 2003.

Class I was problematic throughout OIF for two reasons. One mistake was underestimating the requirement for MREs. This situation was caused by the Marines arriving with more than 40% more personnel than expected or planned for. People not eating from the contracted food service due to operational and quality needs also contributed to an over consumption of MREs. The second problem was strategic and rested with MRE manufacturers.<sup>61</sup>

Early in the deployment, the theater stocks had dwindled to zero on hand. The theater was able to obtain emergency MRE stocks from Europe. During the first 30 days of OIF, theater stocks never exceeded more than three days of MREs on hand at theater level. As MG Christianson said that number was “well below what anybody would feel comfortable with.”<sup>62</sup>

The strategic pipeline was not very responsive as very few commercial vendors were producing MREs. Manufacturers had great difficulty meeting the Army’s needs since the demand was not programmed in advance. The Army’s MRE needs were met with a cold industrial base further aggravating the shortage.<sup>63</sup>

The key element and thread through the diminished infrastructure build up was the late arrival of logisticians. This situation was very similar to Desert Shield/Storm and the consequences were felt throughout the distribution system. When asked about the vulnerability of logistics prior to and during offensive operations on 27 May 2003, MG J.D.Thurman, CFLCC C-3, reflected and so aptly stated “We still had units arriving late. I’d say that we were right on the edge on logistics.”<sup>64</sup>

The prioritization of Class III(B) over Class I was evident as judged by the flow of soldiers. Class III (B) received priority over the other classes of supply as measured by Class III (B) soldiers pre-positioned during the infrastructure preparation and arrivals into the theater. LTG

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<sup>61</sup>MAJ Paul Williams, “MG C.V. Christianson, CFLCC C-4,” OIF Study Group, 23 May 2003.

<sup>62</sup>Ibid.

<sup>63</sup>Suzi Thurmond, “Analyzing the Lessons of OIF Distribution,” Army Logistian (July-August 2004), 20.

<sup>64</sup>LTC Steven Holcomb, “MG J.D. Thurman, CFLCC C-3,” OIF Study Group, 27 May 2003.

Wallace, V Corps Commander, reinforces the Class III (B) priority as he states, “early in the flow we were very concerned about fuel. There was a company’s worth of 5,000 gallon tankers sitting in Kuwait, but the truck drivers weren’t due into the theater for weeks. Ultimately, we asked for and received permission to fly in truck drivers from V Corps to fall in on that equipment, in order to get our truck companies moving.”<sup>65</sup>

COL Frazier, 49<sup>th</sup> QM GRP (POL) Commander, recognized that the arrival of the seven POL Distribution Companies were critical to the CL III success. The rest of the 49<sup>th</sup>’s truck companies flowed from January to March 2003.<sup>66</sup> The same success can not be said for the other logistics soldiers.

MG Christianson clearly delineates the contrast between bulk petroleum and the other classes of supply as he states “Where we failed in supply is that we didn’t understand how critical it was to have the right guys here early enough to stand up these warehouses. We got them here, …just about the time that the supplies arrived and they didn’t have time to work procedures.” He went on to say, “That was a high emphasis with pre-positioning the POL truck companies. Transportation and everything else we took risk on.”<sup>67</sup>

## Observations

The performance of logistics is in a large degree tied to the investment of infrastructure. Infrastructure defined as people, equipment and facilities. The OIF Class III (B) exemplary performance was directly attributable to the infrastructure investment. Class III (B) was the clear priority and received the commensurate attention. Class III was what “right looks like.”

Class I representing all of the other commodities, also performed based on the amount of infrastructure investment. The prime example is the TDC which was ad hoc in its inception and

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<sup>65</sup>Anthony H. Cordesman, “The Lessons of the Iraq War: Executive Summary, (Washington,2003) available from [http://www.csis.org/features/iraq\\_instantlessons.exec.pdf](http://www.csis.org/features/iraq_instantlessons.exec.pdf);accessed 13 November 2003.

<sup>66</sup>LTC David Kolleda, “COL Melvin Frazier interview, 49<sup>th</sup> QM GRP (POL) Commander, OIF Study Group, 24 May 2003.

continued to struggle throughout OIF. The TDC's Operations Officer's comment that expediters determined the distribution priority is an indictment for all logisticians and leaders.

Once again, logistics proved itself as a system of systems. Class I shortage problems validated the ability of the strategic pipeline to respond to the shortage, forcing the theater logistics system to take inventory from other sources. Also, the effects of the unforeseen 40% additional Marines showing up and then not consuming meals from the contracted food service site. These two events severely degraded the MRE stocks.

OIF was very similar to Operation Desert Shield/Storm. These observations are arguably nothing more than observations revisited.

The V Corps Commander, LTG Wallace reflecting on the success of Class III (B) during OIF said that there was never a fuel problem during OIF. The OIF senior leadership had expected a fuel problem and they took many measures to avert it. He also mentioned in hindsight that the leadership should have expended more time and energy on the other classes of supply.<sup>68</sup> One can only speculate on what may have been logically possible if more focus had been directed at the other commodities.

## **EFFECTIVENESS OF DOCTRINE**

This section will illustrate current Class I and Class III(B) doctrine against the performance during OIF. It will also look at the TSC doctrine against its performance during OIF.

Since the end of the Cold War, the Army started to transition from a supply based to a distribution based logistics system.<sup>69</sup> The transition continues today across all the United States

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<sup>67</sup>MAJ Paul Williams, "MG C.V. Christianson, CFLCC C-4," OIF Study Group, 23 May 2003.

<sup>68</sup>Dr. Charles E. Kirkpatrick, LTG William S. Wallace interview, Commander, V Corps, OIF Study Group, 16 June 2003.

<sup>69</sup>General Peter J. Schoomaker, *White Paper: Joint and Expeditionary Logistics for a Campaign Quality Army (Draft)* (Washington D.C. : U.S. Government Printing Office, 2004), 4.

military forces. *Joint Vision 2020* lists “Focused Logistics” as one of the four operational concepts that will provide our forces with a new conceptual framework.

*Joint Vision 2020* defines focused logistics “as the ability to provide the joint force the right personnel, equipment and supplies in the right place, at the right time, and in the right quantity, across the full range of military operations.”<sup>70</sup> The goal of focused logistics is for the future logistics footprint to be a more precise balance between “just in case” and “just in time” to achieve “just enough.”<sup>71</sup> Distribution based logistics as described in this monograph complements focused logistics and are essentially the same concept.

### **Operation Iraqi Freedom Doctrine**

FM 4-93.4, *Theater Support Command*, outlines the responsibilities of the TSC. Similar to other logistical units above division level, the TSC is a multifunctional support headquarters without a standard structure. It is designed to be flexible and facilitates flexibility based on mission requirements. The TSC is responsible for the operational level of supply. The operational level of supply focuses on sustainment, supply unit deployment, and distributing and managing classes of supply. Soldiers, contractors and civilians provide support from within as well as outside the theater of operations. In the theater, soldiers, contractors and DOD civilians perform specified supply support functions. Deploying and integrating forces in the theater are based on the combat commander’s campaign plan. The operational level of supply entails the support required to sustain campaigns and major operations. The operational level of supply enables success at the tactical level of war.<sup>72</sup>

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<sup>70</sup>U.S. Department of Defense, *Joint Vision 2020* (Washington, no date), 24; available from <http://www.iwar.org.uk/military/resources/aspc/pubs/jv2020.pdf>; Internet; accessed 1 November 2004. Dominant maneuver, precision engagement and full-dimensional protection comprise the other operational concepts.

<sup>71</sup>Ibid. 25.

<sup>72</sup>U.S. Department of the Army, FM4-0, Combat Service Support (Washington D.C., 2003), 3-1.

Doctrinally, all TSCs are supposed to have a Distribution Management Center (DMC). The 377<sup>th</sup> TSC's DMC is located on the left of the slide. The purpose of the DMC is to provide staff supervision over the Material Management Center (MMC) and the Movement Control Agency (MCA). <sup>73</sup> COL Walden stated that the DMC was ineffective because there was not a fusion of the MMC and MCA with the DMC. The problem was that the DMC is a staff entity and the MCA contained commanders to include a general officer. The lack of control was detrimental to fusing sustainment and movements.<sup>74</sup>

FM 100-10-1 (Theater Distribution) further discusses the importance of the DMC in accomplishing the distribution concept of centralizing management. The FM states that centralizing management is essential to efficient and effective distribution system operations. It involves the integrated end-to-end visibility and control of the distribution system capacity and distribution pipeline flow. Designated distribution managers in distribution management centers (DMCs)...at each...echelon manage distribution management operations and coordinate and synchronize movements of supplies, personnel, and unit equipment. Material management and movement control operations at each echelon are synchronized under the ...DMC.<sup>75</sup>

Also, the DMC would provide supervision over other subordinate organizations assigned or attached to the TSC. These units may include a QM Petroleum Group, Ammunition Group, or one or more Area Support Groups.<sup>76</sup> A Personnel Command was placed under a TSC during OIF. The move was made due to problems in mail and casualty reporting during Operations Desert Shield/Storm<sup>77</sup>

The Combined Arms Support Command located at Fort Lee, Virginia was so concerned with the performance of OIF distribution that it reexamined FM 100-10-1 (Theater Distribution)

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<sup>73</sup>FM 100-10-1, 3-4 to 3-5.

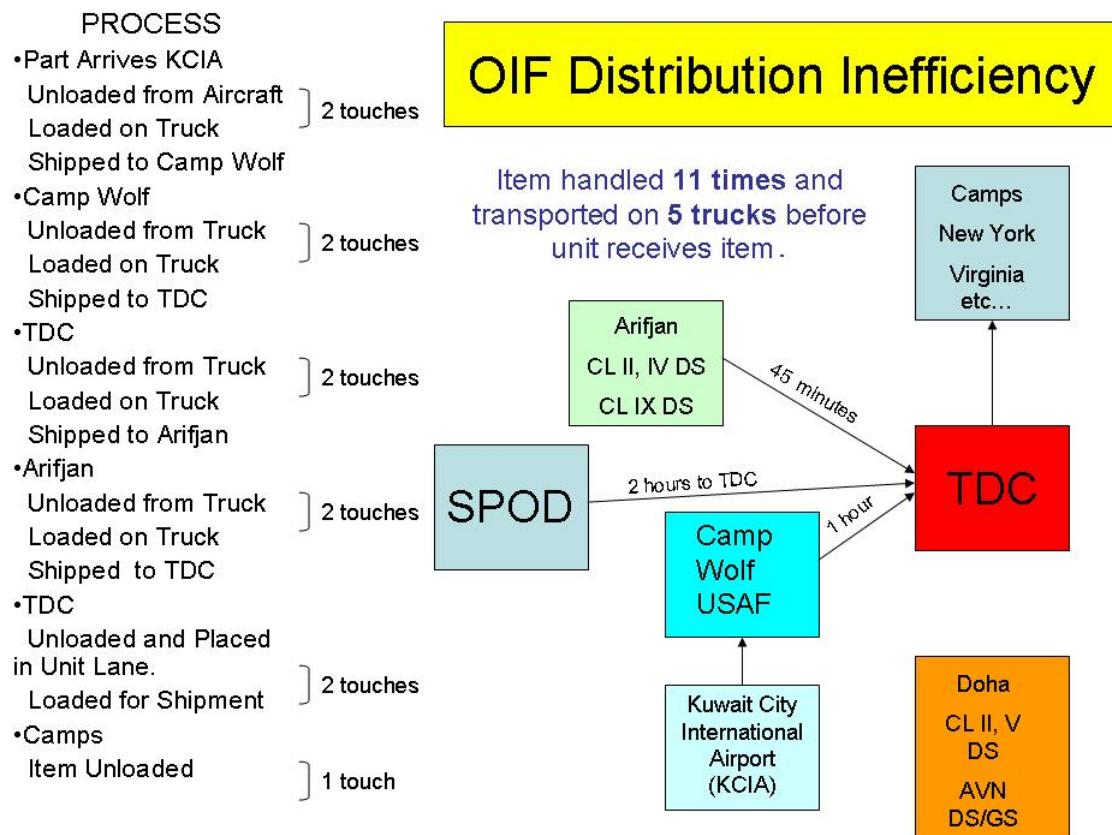
<sup>74</sup>Personal Interview with COL (Retired) Walden on 22 November 2004.

<sup>75</sup>FM 100-10-1, 3-4 to 3-5.

<sup>76</sup>Ibid.

<sup>77</sup>SGT Frank N. Pellegrini, "Supporting Gulf War 2.0", Army, September 2003,25.

to see if the difficulties were rooted in doctrine. After contacting the field, the consensus was with the exception of force protection, that FM 100-10-1 did not need revision. The FM was still considered relevant requiring only minor changes.<sup>78</sup>



**Figure 3: OIF Distribution Inefficiency**

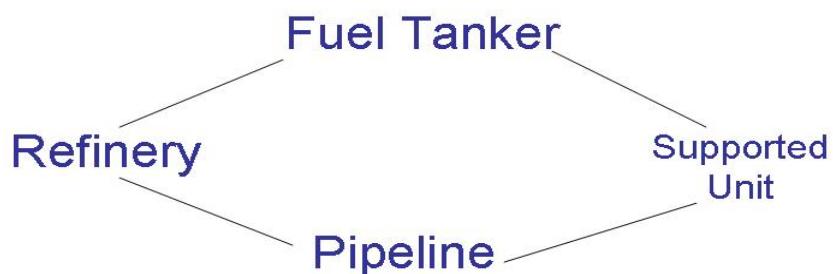
Source: Information was derived during personal interview with COL (Retired) Joseph Walden on 22 November 2004.

Figure 3 represents the reality and inefficiency of the OIF distribution system. Most items were handled eleven times and shipped five times before a supported unit saw its commodity. It would take a separate study to calculate the manpower and distribution assets wasted on merely moving items from one area to another. Figure 3 violates every supply and

<sup>78</sup>Suzi Thurmond, "Analyzing the Lessons of OIF Distribution," *Army Logistian* (July-August 2004), 18.

distribution doctrinal concept.<sup>79</sup> Conversely, The Class III (B) Distribution in Figure 4 represents effectiveness.

## OIF Class III(B) Distribution



Fuel handled **2 times** before supported unit receives it.

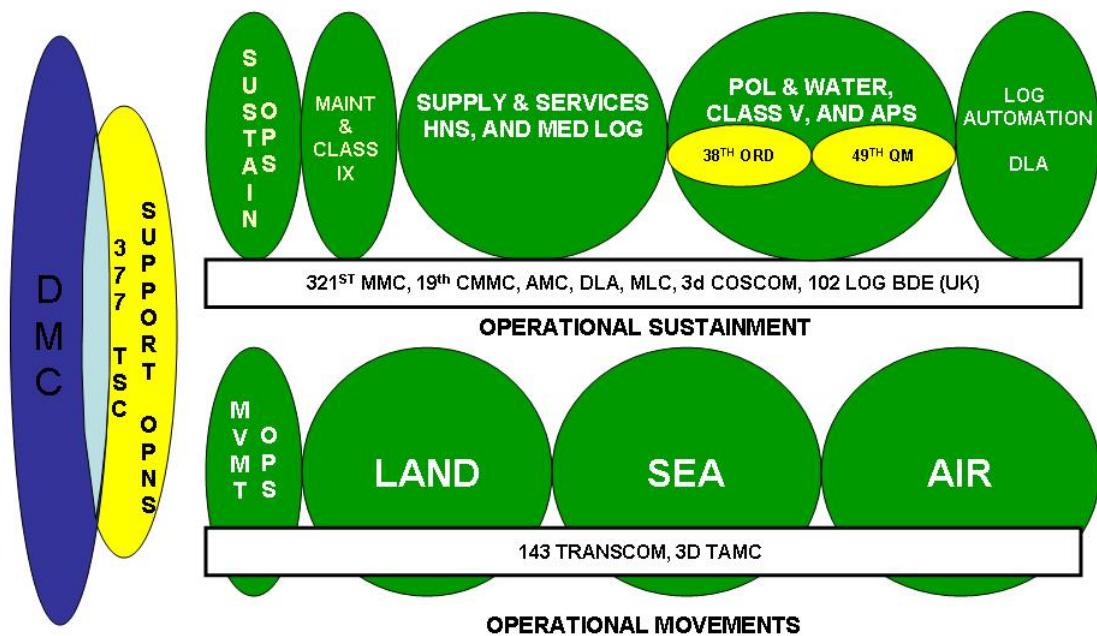
Figure 4: OIF Class III (B) Distribution Efficiency

Source: Information was derived during personal interview with COL (Retired) Joseph Walden on 22 November 2004.

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<sup>79</sup>Editors Note: Reference Figure 3. The author asked COL Walden what he would do to correct the distribution problem illustrated and he said that he would have moved the TDC to Arifjan. There are Kuwaiti political sensitivities between KCIA and Camp Wolf that can't be easily solved. To minimize the impact COL Walden would position trucks at Camp Wolf in the evening in order to do a trailer to trailer transfer in the morning when the flights arrive.

## THE NEW WAY FUSION OF MOVEMENTS AND SUSTAINMENT



**Figure 5: 377th TSC Fusion of Movements and Sustainment**

Source: 377<sup>th</sup> Theater Support Command Briefing dated 11 May 2004.

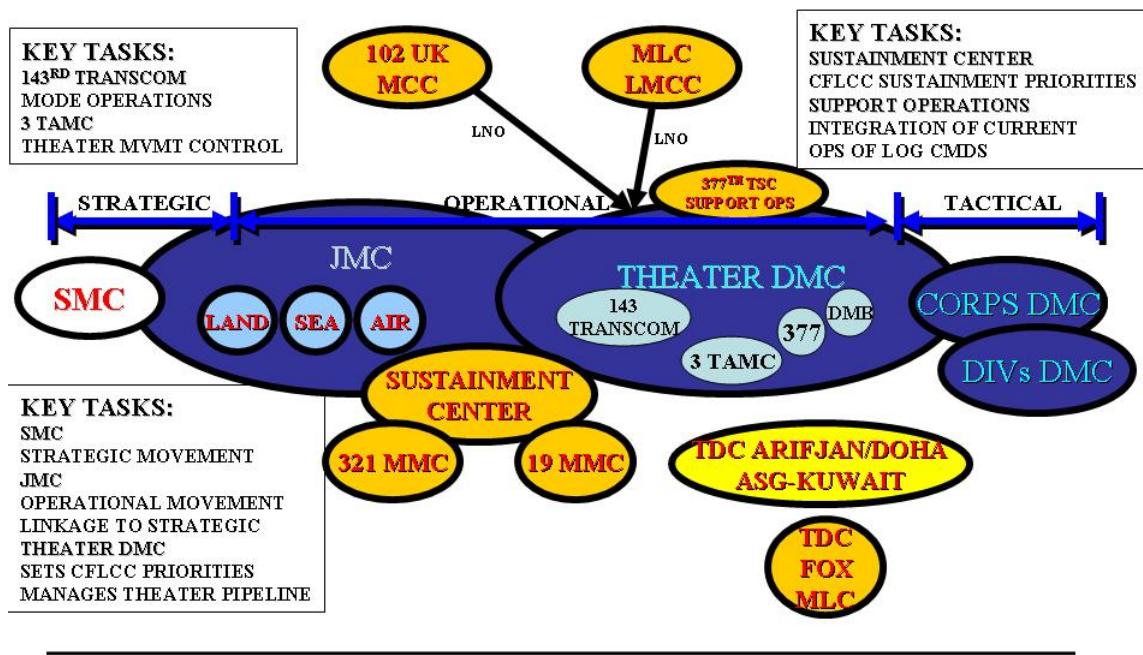
Unlike the specialized units that may be assigned to the TSC, Area Support Groups (ASGs) are multifunctional and are task organized for a particular mission. ASGs provide direct support to units in a specific area of operations.<sup>80</sup>.

Figure 5 also illustrates a non doctrinal technique that is gaining acceptance across the Army. The 377<sup>th</sup> formed fusion cells consisting of operational sustainment and operational movements. This is a move away from traditional functional lanes and reinforces communications and facilitates planning. Planners see this in the conduct of Operations Planning Groups (OPG).

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<sup>80</sup>FM 4-93.4, 3-4.

# THEATER DISTRIBUTION



**Figure 6: 377th TSC OIF Theater Distribution Concept**

Source: 377<sup>th</sup> Theater Support Command Briefing dated 11 May 2004.

Figure 6 is a very good representation of the involvement of the DMCs throughout the operational and tactical levels of distribution. The figure also depicts the involvement of the Marine Logistics Command and the British Support Command. As referenced earlier in the paper, the Marine Logistics Command and the Theater Support Command were born out of Operations Desert Shield/Storm.

The figure further illustrates a conflict involving multiple Material Management Centers (MMC). Doctrinally, there should only be one Theater MMC. The presence of both the 19<sup>th</sup> and

321st MMCs caused confusion for the supported units. The TSC realized this and reduced to one MMC.<sup>81</sup> The next level of supply after the operational level is the tactical level.

The tactical level of supply “focuses on readiness and supports the tactical commander’s ability to fight battles and engagements. Successful support is anticipatory and provides the right supplies at the right time and place to supported units. Major emphasis is placed on fueling the force and supporting soldiers and their systems. Mobile, responsive capabilities are essential for accomplishing the supply mission.”<sup>82</sup>

The tactical level of supply was spearheaded by the 3d Corps Support Command (COSCOM). During Operation Iraqi Freedom, The 3d COSCOM provided its habitual support to the Army’s V Corps. V Corps and 3d COSCOM deployed from Germany for OIF. The 3d COSCOM deployed with the 7<sup>th</sup> Corps Support Group (CSG), the 16<sup>th</sup> CSG, the 19<sup>th</sup> Material Management Center (MMC) and the 181<sup>st</sup> Transportation Battalion. The 3d COSCOM integrated the 101<sup>st</sup> and 24<sup>th</sup> CSGs into its command structure. The 101<sup>st</sup> CSG normally supported the 101<sup>st</sup> Airborne Division (Air Assault) and the 24<sup>th</sup> CSG habitually supported the 3d Infantry Division (Mechanized).

## **Current Class I and Class III(B) Distribution Doctrine**

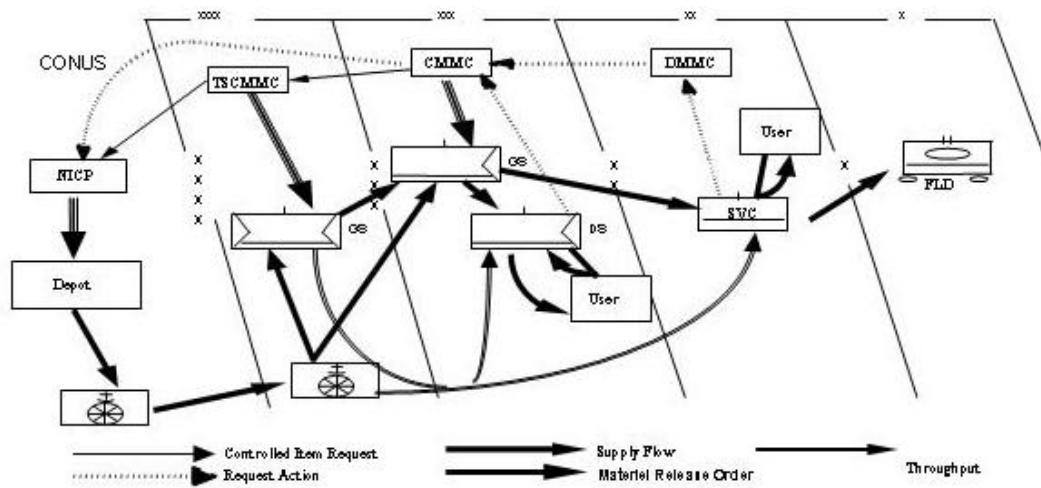
### **Class I Distribution:**

The doctrinal flow of Class I from the strategic to tactical level of supply is depicted in Figure 7.

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<sup>81</sup>LTC David Kolleda, “COL Richard D. Knapp interview, G-3 Current Operations, 143 TRANSCOM, OIF Study Group, 1 June 2003.

<sup>82</sup>Ibid



**Figure 7: Class I Battlefield Distribution**

Source: U.S. Department of the Army CGSC Student Text 63-1, Brigade, Division and Corps

Combat Service Support dated 2004, figure 6-3

At the operational level of supply, the TSC “pushes” Class I supplies to the Corps GS and has the capability to “throughput” to the division DS supply company, if necessary.<sup>83</sup>

At the tactical level of supply, COSCOM GS supply companies “push” class I supplies forward to divisional DS supply companies. The amount of supplies “pushed” forward is based on personnel strength, unit locations, task organization and the type of operation. As the situation matures and actual strength numbers are reported, current doctrine dictates that units may begin to requisition rations from supply activities. Class I is normally shipped to the MSB S&S Company and the FSB’s supply company in the BSA.<sup>84</sup> The MRE is best suited for intense levels of combat when soldiers are in contact, transit or in a convoy.<sup>85</sup>

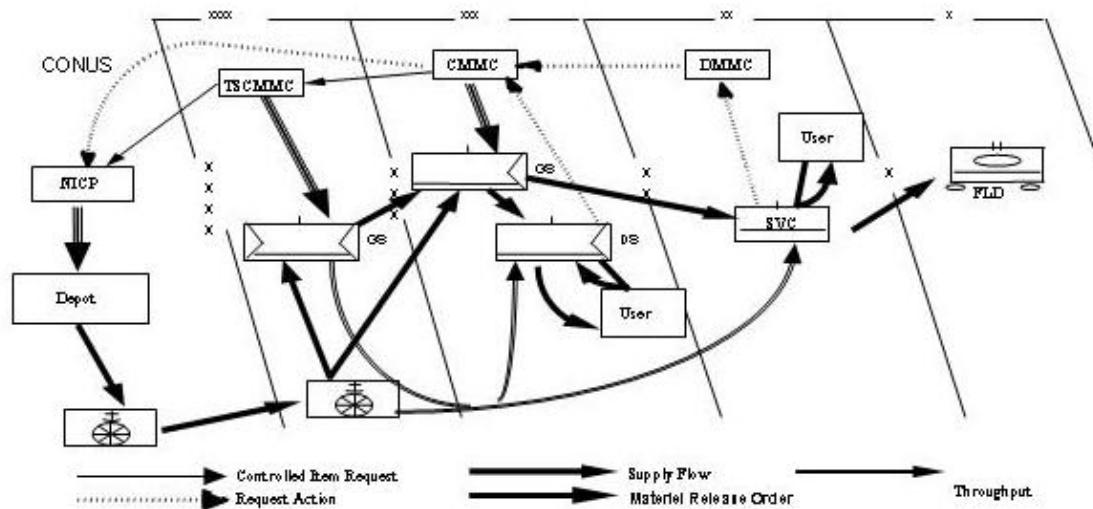
<sup>83</sup>Ibid, 6-5.

<sup>84</sup>Ibid, 6-5.

<sup>85</sup>Ibid, 8-9.

As depicted in Figure 7, the tactical distribution is handled by the COSCOM and Division Support Commands. FM 63-3, *Corps Support Command*, details the responsibilities and capabilities normally inherent in a COSCOM. Like the TSC, the most important aspect of the COSCOM is that it can be tailored to the mission. OIF reinforced this flexibility as the supporting CSGs from the 3<sup>rd</sup> ID and 101<sup>st</sup> Airborne Division (Air Assault) were subordinated to the 3<sup>rd</sup> COSCOM. The 3d COSCOM supported V Corps during the initial stages of OIF.<sup>86</sup>

The other players in the tactical logistics area are the Division Support Command (DISCOM) structures as depicted in FM 63-2, *Division Support Command*. The type of division (airborne, air assault, armor/mechanized infantry, light) dictates the exact structure of its organic DISCOM.



**Figure 8: Class III (Bulk) Battlefield Distribution**

Source: U.S. Department of the Army CGSC Student Text 63-1, Brigade, Division and Corps Combat Service Support dated 2004, figure 6-5.

<sup>86</sup>U.S. Department of the Army, FM 63-3, *Corps Support Command* (Washington, 1993) 1-17.

## Class III (Bulk) Distribution

Figure 8 illustrates the doctrinal Class III (B) distribution system. Bulk fuel requisition system is based on forecasted requirements. The MMCs at division, corps and theater levels play a pivotal part in this process. The MMCs consolidate the forecasts from their subordinate units and forward the consolidated forecast to the higher MMC. At the operational level, forecasts are sent to the TSC MMC or Joint Petroleum Office. In OIF, the 377<sup>th</sup> TSC MMC was the consolidator for the theater's bulk fuel forecasts.<sup>87</sup>

At the operational level, the TSC petroleum group uses various or a combination of methods to distribute fuel. Some of the methods are pipeline, railcar, truck, barge, or a combination, of these methods. The TSC transports fuel from the theater level to corps Class III (B) points operated by the COSCOM.<sup>88</sup>

The CSG/CSB petroleum supply companies and nondivision DS supplies operate the Class III (B) points within the Corps area. A corps supply company then delivers the fuel from the corps GS petroleum company to the Main Support Battalion, Forward Support Battalions or the Division Aviation Support Battalion in the division or brigade areas.<sup>89</sup>

In emergencies, the TSC or Corps Material Management Centers may divert fuel to forward locations in need of resupply. The fuel is normally diverted to a forward based CSB and divisional Class III (B) supply points.<sup>90</sup>

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<sup>87</sup>U.S. Department of the Army, ST 63-1, Brigade, Division, and Corps Combat Service Support (Ft. Leavenworth, 2004), 6-9.

<sup>88</sup>Ibid, 6-10.

<sup>89</sup>Ibid. 6-10.

<sup>90</sup>Ibid.

## Observations

Doctrinally, at the corps and division levels, the organizations performed as intended. The COSCOM and DISCOMs fulfilled their responsibilities within their means. The same can not be said about the TSC.

The TSC did not perform its missions as required by doctrine. The general lack of transportation across the logistical spectrum is the responsibility of the TSC. Also, the failings of the distribution system doctrinally fall on the TSC. Figure 3 (OIF Distribution Inefficiency) clearly delineates a distribution system in chaos. Every supply and distribution concept is being violated. As discussed in the infrastructure chapter, a large part of the fault lays in the failure to deploy the TSC forces earlier in the process.

Non-compliance with doctrine was not restricted to logisticians. Some warfighters in their quest for success adversely affected the logistical system. Early in the mission analysis and planning process, and because of their DESERT STORM experience, leaders at every level focused on the necessity to provide fuel to the force during the long march up-country. *On Point* illustrates “While there are no recorded instances of units running out of fuel during offensive operations, success was achieved by non doctrinal petroleum, oil and lubricants (POL) resupply efforts. Some of these included combat arms commanders retaining control of POL tankers rather than returning them to support units.”<sup>91</sup>

## RECOMMENDATIONS

Logistics is a system of systems and it is complex in its nature. To many people that may be obvious, but I would submit at the highest levels there is not that understanding. One look at the Army’s White Paper on *Joint and Expeditionary Logistics for a Campaign Quality Army* reveals a misunderstanding of logistics complexity.

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<sup>91</sup>U.S. Department of the Army, *On Point: The United States Army in Operation Iraqi Freedom* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004) 408-409.

When discussing logistics focus areas in regards to modernizing theater distribution the White Paper states that “Effective theater sustainment rests solidly on the fundamental concepts of distribution-based logistics. The Army needs a single focus on the simple<sup>92</sup> task of guaranteeing delivery—on time, every time, from where the source of support is to the soldier at the tip of the spear.”<sup>93</sup> If guaranteeing delivery on time, every time was simple, I doubt that distribution would be discussed today. To solve the distribution problem, it is imperative to recognize that the system is complex and trying to make it simple is counter productive and only leads to inadequate analysis and unworkable solutions.

If the military wants to be both efficient and effective, then the answer is a joint logistics command at the four star general level. TRANSCOM can transition to the Joint Logistics Command (JLC). The JLC would have regionally focused subordinate TSCs. The establishment of regionally focused TSCs facilitates the development of subject matter experts within the TSC and relationship building between the TSC and the regional combatant command. The TSC would be the theater single logistics operator as it is doctrinally today. Even though the performance of the 377<sup>th</sup> TSC was less than outstanding, it does not diminish the fact that the TSC concept is sound.

The important point for strategic and operational commanders is to remember the LTG Pagonis improved model.<sup>94</sup> That model would incorporate all joint theater logistics under one commander. That commander would be the TSC Commanding General/Admiral. Assigning one commander to command all logistics functions within the theater is imperative for proper command and control. The TSC provides that singular logistics commander. Within the TSC are

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<sup>92</sup>Emphasis added.

<sup>93</sup>General Peter J. Schoomaker, *White Paper: Joint and Expeditionary Logistics for a Campaign Quality Army (Draft)* (Washington D.C. : U.S. Government Printing Office, 2004), 17.

<sup>94</sup>The LTG Pagonis improved model provides a TSC Commanding General/Admiral to control all theater logistics. As stated earlier in the paper, LTG Pagonis didn’t control USMC, USN and USAF logistics during ODS. Even though he was responsible and held accountable by GEN Schwarzkopf, LTG Pagonis did not have command authority over the other joint forces logistics.

the multi-functional and functional commands that habitually exist today. Functional commands are imperative for expertise and control. The 49<sup>th</sup> QM GRP's (POL) performance during OIF is indicative of what a functional command can accomplish. The 49<sup>th</sup> QM GRP (POL) showed what was possible logistically when resourced properly and allowed to establish its support infrastructure. I would advocate that the 49<sup>th</sup> QM GRP is the ideal example advocating single control of a commodity.

Commanders and planners have to understand that there is a direct correlation between logistics infrastructure and expected logistics performance. Infrastructure defined as people, equipment and facilities. A robust logistics infrastructure will optimize the possibility of enhanced logistics performance. OIF was a perfect backdrop to illustrate the correlation between logistics infrastructure and logistics performance. The commendable Class III (B) performance was directly attributable to the infrastructure investment. Class III (B) was the clear priority and received the commensurate attention. Class III was "right looks like." The converse was Class I which suffered like the other classes of supply from the lack of infrastructure investment.

Class I representing all of the other commodities, also performed based on the amount of infrastructure investment. The TDC was the prime example of what "wrong looks like". Ad hoc in its inception and under resourced the TDC struggled throughout OIF. As expressed earlier in the monograph, the TDC never had the opportunity to succeed. During a large part of OIF, the day work force was never the same. This resulted in a lack of proper procedures to handle and distribute various classes of supply.

Once again, logistics proved itself as a system of systems. Leaders and planners have to grasp the complexity of logistics in order to try and manage it. An effect anywhere in the strategic, operational and tactical pipeline reverberates across the entire spectrum. Class I shortage problems validated the effect of the failure of the strategic pipeline to quickly respond to the shortage, requiring the Army taking inventory from other theater operational stocks. Also, the effects of the unforecasted 40% additional Marines showing up and then not consuming meals

from the contracted food service site. These two events severely degraded the MRE stocks.

Another example of the logistical system was the failure of distribution during OIF. There were a number of causes for the failure. Many of the reasons were the same from Desert Storm. OIF was very similar to Operation Desert Shield/Storm in this regard. The observations presented are probably nothing more than observations revisited.

As stated early in the monograph, bottled water required 50% of the daily lift out of the TDC. The Army must develop doctrine to recognize that bottled water will probably be used in all future operations. Planning factors to include consumption, lift requirements and packaging must be developed. Also, additional distribution assets must be programmed into the UA, UEx and UEy force designs to compensate for the planned use of bottled water.

How does this study impact on an expeditionary Army? Frankly, this study illustrates to commanders and planners to what potential the logistics system can perform as evidenced by Class III (B) during OIF. But, OIF also reinforced the historical distribution problems. To an insight to way this happened, the OIF V Corps Commander, LTG Wallace's states after the war "We focused on fuel because we knew that it was going to be an issue and we never once.. not once<sup>95</sup> ... had a fuel problem. Fuel was not a problem. In retrospect, we probably should have focused on some of the other classes of supply more than we did."<sup>96</sup>

The OIF senior leaders focused on fuel at the expense of all the other logistical functions. Those leaders decided to take risk in all of the logistical areas other than fuel. I would point out in light of the risk, OIF logistics performed as the senior leaders intended. As the Army transitions to an expeditionary force, logistics will continue to be based on risk tolerance.

A review of the Army's working revision *White Paper Unit of Employment (UE)* *Operations* recognizes that risk is inherent to sustaining operations. In a discussion on extending

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<sup>95</sup>Emphasis in the original.

<sup>96</sup>Emphasis added. Dr. Charles E. Kirkpatrick, LTG William S. Wallace interview, Commander, V Corps, OIF Study Group, 16 June 2003.

operational reach the paper states “the UE commander can still extend the operational reach of the force by understanding the demands for logistics and the limitations of the logistical system.”<sup>97</sup> The key words are understanding and logistical system.

Commanders and I would add planners have to have an understanding of the logistical system. An understanding of logistics is an understanding of complex interrelated systems. Only with this understanding of logistics can a commander realistically recognize and accept the risk that logistics will always place on them. There will always be finite resources, competing interests and time working against each other. The commander must decide what risk they are willing to accept in this environment.

Doctrine works. Many of the doctrinal references will be updated based on the OIF experience which is good. There are instances where doctrine was not followed and that is fine if someone made a conscious decision based on situational factors. Doctrine is a common understanding and a point of departure- it should never be dogma. Even with the great success of Class III (B) during OIF, non doctrinal approaches were present:

Early in the mission analysis and planning process, and as a result of their DESERT STORM experience, leaders at every level focused on the necessity to provide fuel to the force during the long march up-country. While there are no recorded instances of units running out of fuel during offensive operations, success was achieved by non doctrinal petroleum, oil and lubricants (POL) resupply efforts. Some of these included combat arms commanders retaining control of POL tankers rather than returning them to support units.<sup>98</sup>

This quote illustrates two key points. The action of retaining control of the POL tankers by combat arms commanders was wrong. Taking those assets out of the distribution cycle caused unintended effects across the battlefield. Hopefully, the 49<sup>th</sup> QM GRP (POL) was able to adjust

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<sup>97</sup>U.S. Department fo the Army, White Paper: Unit of Employment (UE) Operations, Version 3.5 Working Revision (Washington, D.C.: Goverinemnt Printing Press. 2004) 49.

to the loss and most likely did. Another point and probably the most important to commanders and logisticians alike is the lack of confidence that those commanders had in the distribution system. Commanders and logisticians have the responsibility to create confidence in the logistics system.

As this paper pointed out, the logistics infrastructure and the logistics command and control are established by combat arms commanders and not logisticians. The commanders decide to what degree the logistical infrastructure will be developed by infrastructure improvements and troop and equipment arrival dates.

Doctrinally, for the most part organizations performed as intended. This is especially true at the tactical level. The COSCOM and DISCOMs fulfilled their responsibilities within their means. The same cannot be said about the TSC.

The TSC did not perform its missions as required by doctrine. The general lack of transportation across the logistical spectrum is the responsibility of the TSC. Also, the failings of the distribution system doctrinally fall on the TSC. As discussed in the infrastructure chapter, a large part of the fault lays in the failure to deploy the TSC forces earlier in the process and in establishing systems to enable success.

## **CONCLUSION**

Before a commander can even start thinking of maneuvering or giving battle, of marching this way and that, of penetrating, enveloping, encircling, of annihilating or wearing down, in short of putting into practice the whole rigmarole of strategy, he has-or ought-to make sure of his ability to supply his soldiers with those 3,000 calories a day without which they will very soon cease to be of any use as soldiers; that roads to carry them to the right place at the right time are available,

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<sup>98</sup>U.S. Department of the Army, *On Point: The United States Army in Operation Iraqi Freedom* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004) 408-409.

and that movement along these roads will not be impeded by either a shortage or a superabundance of transport.

Martin Van Creveld, *Supplying War*

The purpose of this monograph was to analyze the distribution processes for Class I against the distribution process for bulk petroleum against the backdrop of Operations Desert Shield/Storm and Iraqi Freedom. Specifically, what caused the drastic improvement in performance of bulk petroleum from Operations Desert Shield/Storm to Iraqi Freedom.

Examining the processes using the criteria of command and control along with infrastructure improvements indicated that a large part of the Class III (B) success during OIF was attributable to the criteria. COL Frazier, the 49<sup>th</sup> QM Group (POL) Commander was solely responsible for bulk petroleum. He attributed a large part of the success to that fact that “We controlled the distribution from the factory to the destination.”<sup>99</sup>

The biggest factor of bulk petroleum’s success during OIF was the priority that LTG McKiernan and other senior leaders placed on it. Based on their experiences during Operation Desert Storm where units ran out of fuel, they were determined not to repeat it. And they didn’t! The prioritization of bulk fuel resulted in success throughout the theater and across the operational and tactical battlespace. Unfortunately, the attention accorded to bulk fuel did not apply across the logistical spectrum.

Logistics is a complex system of systems. Logistic functions are interrelated. An impact in one function will resonate across other functions. The tendency is to make the complex-simple. As admirable and necessary that may be it results in an ignorance of a process or a system of systems. Logistics is one of those areas where the Army has simplified a system of

systems resulting in senior leaders and logisticians relegating logistics to a simple number crunch. Vision 2020 has set high marks for joint logistics and it will take a joint and focused effort on behalf of the joint community's leadership to achieve the tenants of focused logistics.

The concept of an expeditionary Army also places expectations for increased logistics efficiency. Expeditionary force commanders must understand logistics as a complex system of systems in order to properly assess and accept risk that is inherent in any operation. The more robust the logistics infrastructure the more likely that logistics will run as commanders expect. There is a correlation between infrastructure and performance and OIF proved it. The military also needs a Joint Logistics Command (JLC).

A JLC provides reasonable hope for efficiency and effectiveness. Instead of four service centric supply systems there should be one joint system. Also, the JLC can flexibly respond with logistics assets from the air, sea and land across any combatant commander's area. Every regional combatant commander has a supporting TSC for the region's logistics requirements. The TSC is building relationships with the region's forces, planning and establishing logistical infrastructure. However, the JLC can pull the assets from the TSC to include personnel and commodities to fulfill worldwide needs.

In closing, most of the observations cited in this paper from OIF are the same as ODS and I'd guess the same as Vietnam. That indicator is not positive and not indicative of a learning organization. I will close with what COL (Retired) Walden told me as we concluded his interview "It's not a lesson learned until someone does something about it. CALL (Center for Army Lessons Learned, headquartered at Fort Leavenworth, KS) is filled with many observations."<sup>100</sup> I'd ask that the Army turn my observations into lessons learned!

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<sup>99</sup>LTC. David J. Kolleda, "COL Melvin Frazier interview, Commander, 49<sup>th</sup> QM Group (POL)," OIF Study Group, 24 May 2003.

<sup>100</sup>Personal Interview with Colonel (Retired) Walden conducted on 22 November 2004.

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